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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Jianjun Zhang, et al. :Date: April 22, 2005
Serial No.: 10/068,269 ✓ :Group No.: 2874
Filed: February 5, 2002 :Examiner: Wood, Kevin S.

Attorney Docket No.: OPLUX0105

Title: OPTICAL SWITCH WITH REVERSABLE ELECTROPLATING MIRRORS

To the Commissioner for Patents:

SUBMITTAL OF ABSTRACT AND DRAWINGS

In response to the request of the Publication Office of the USPTO, the Applicant hereby respectfully submits a copy of the Abstract and a complete set of nine pages of drawings of the referenced patent application.

Respectfully submitted,
Jianjun Zhang, et al.

By 

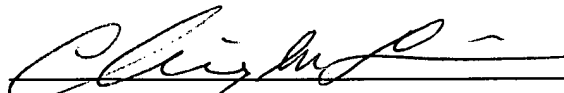
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CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this Office Response Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service on **April 22, 2005** in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number **ED687354181US** addressed to: Commissioner for Patents, P.O.Box 1450, Arlington, VA 22313-1450.

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Abstract

5 The present invention discloses an optical switching element that
uses reversible electroplating mirrors includes a trench with transparent
sidewalls located at the intersection of two waveguides A and B. The
trench has two electrodes; one, which is transparent, is placed on the
trench sidewall and the other is placed on the trench floor. The trench is
filled with an index-matching electrolytic solution containing ions of a
metal that can electro-deposit on these two electrodes. To actuate the
10 switching element, a negative electrical potential is applied to the sidewall
electrode. Actuation causes metal deposits to form on the sidewall
electrode, creating a mirror that reflects light from waveguide A to
waveguide B. To deactivate the switching element, a positive electrical
potential is applied to the sidewall electrode. Deactivation causes metal
15 deposits move off the sidewall and form on the trench floor. The lack of
metal deposits on the sidewall allows light to pass through the switching
element and continue along the original waveguide A.